



Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE
PRIMARY ROAD SYSTEM
ALLAMAKEE COUNTY
DYNAMIC MESSAGE SIGNS

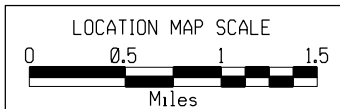
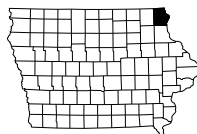
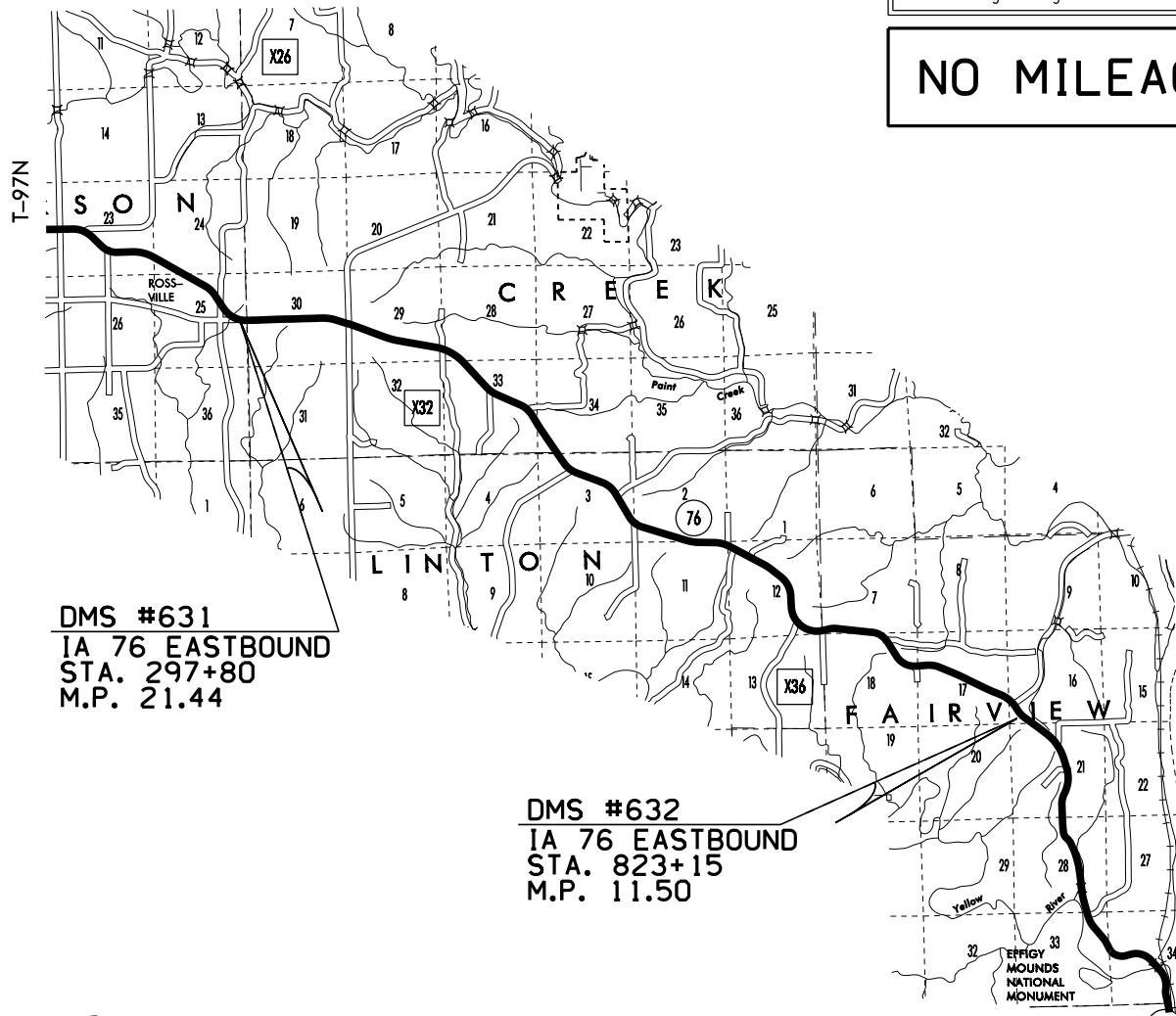
Two locations on IA 76, at Rossville and X52

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2009, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions, shall apply to construction work on this project.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY



TOTAL	
16	
PROJECT IDENTIFICATION NUMBER	
10-03-076-010	
PROJECT NUMBER	
ITS-76-2(45)--25-03	

INDEX OF SHEETS	
No.	Description
A.01	TITLE SHEET
B.01-B.03	TYPICAL DETAILS
C.01-C.02	QUANTITIES, ESTIMATE REFERENCE NOTES, TABS
N.01-N.03	DETAILS OF SITE #631 & #632
V.1-V.5	STRUCTURAL DETAILS
X.01-X.02	SITE CROSS SECTIONS

STANDARD ROAD PLANS		
The following Standard Road Plans shall be considered applicable to construction work on this project.		
Number	Date	Title
RM-42	04-20-10	Precast Handhole
TC-1	10-17-06	Work Not Affecting Traffic
TC-202	04-20-10	Shoulder Closure (One Lane)
TC-283	10-21-08	Surveying Operations

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.01	John M. Narigon	Primary Signature Block
V.1	James R. Hauber	Structural Details

I hereby certify that this plan was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: *John M. Narigon* Date: 04/06/2010
Printed or Typed Name: John M. Narigon

My license renewal date is December 31, 2011

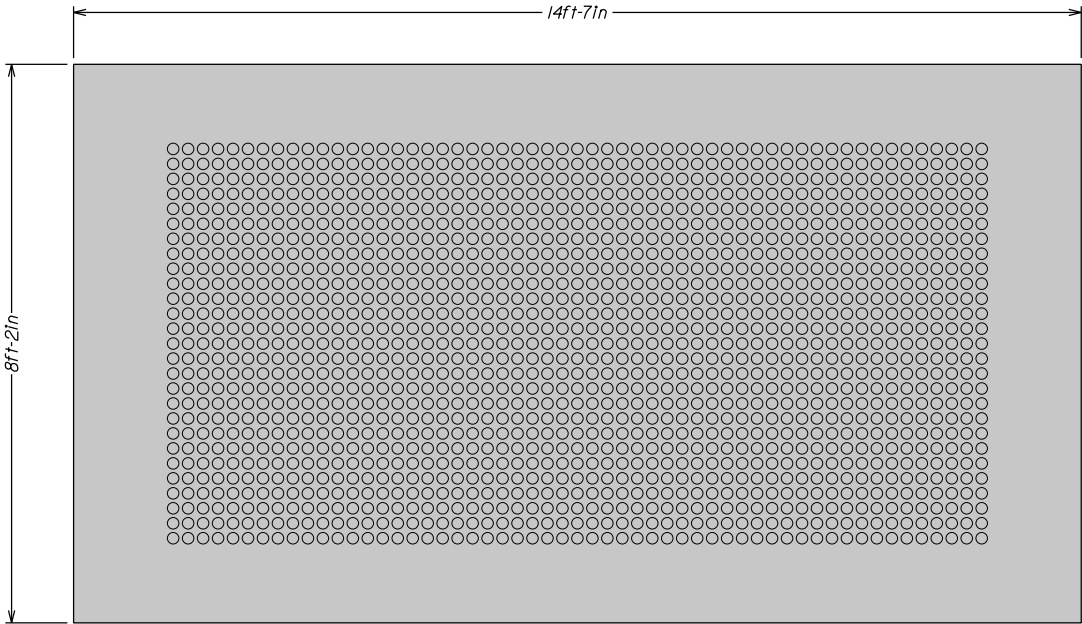
Pages or sheets covered by this seal:
A.01, B.01-B.03, C.01-C.02, N.01-N.03, X.01-X.02

DIMENSIONAL INFORMATION

Manufacturer: Skyline
Model Number: VMSLED-L-3-18F-27X55-I
Type: Full Matrix
Pixels: 55 x 27 (width x height)

Height: 8'2"
Width: 14'7"
Depth: 1'4"

Weight: 1500 lbs.



TRANSPORTATION REQUIREMENTS

All material and equipment necessary to transport the sign to or from the storage site and/or installation site shall be furnished by the Contractor.

The sign shall be transported in the upright position. At no point in time shall the sign be laid on its side, front, or back.

To avoid damage to the sign during transport, consult the sign manufacturer to determine the correct method to secure the sign to the trailer.

Any damage incurred during transportation shall be the responsibility of the Contractor.

STORAGE REQUIREMENTS

All material and equipment necessary to store the sign at the designated site shall be furnished by the Contractor.

The sign shall be stored upright and level. At no point in time shall the sign be laid on its side, front, or back.

The sign must be blocked up at least three inches from the ground. When the sign is not stored on concrete, extra blocking shall be used to provide for settlement.

Remove shipping support legs from the DMS after installation on the support structure.

During transportation and storage, the DMS shall be secured at all times to prevent tipping. The DMS shall be secured with dead man anchors or other suitable methods. The DMS shall not be marred by the selected method. Tipping may be caused by any number of reasons, but high winds and other weather related events are the primary concern while the DMS is on the ground.

Any damage resulting from the failure to properly secure the DMS shall be the responsibility of the Contractor.

ATTACHMENT HARDWARE

All materials necessary to attach the DMS to the support structure will be furnished with the DMS.

LIFTING REQUIREMENTS

The following procedures shall be followed when lifting the sign for either removal or installation, including lifting the sign from the storage site to the trailer or the reverse, and from the trailer to the support structure or the reverse.

The crane and lifting bar shall be rated to lift a minimum of 2000 pounds.

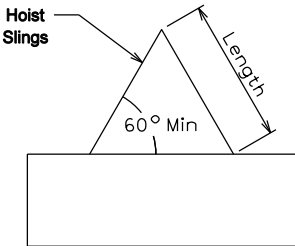
Any damage incurred during lifting shall be the responsibility of the Contractor.

The information presented below is from the literature provided by the manufacturer. Consult the manufacturer for complete lifting requirements.

** Skyline Sign Lift Procedure **

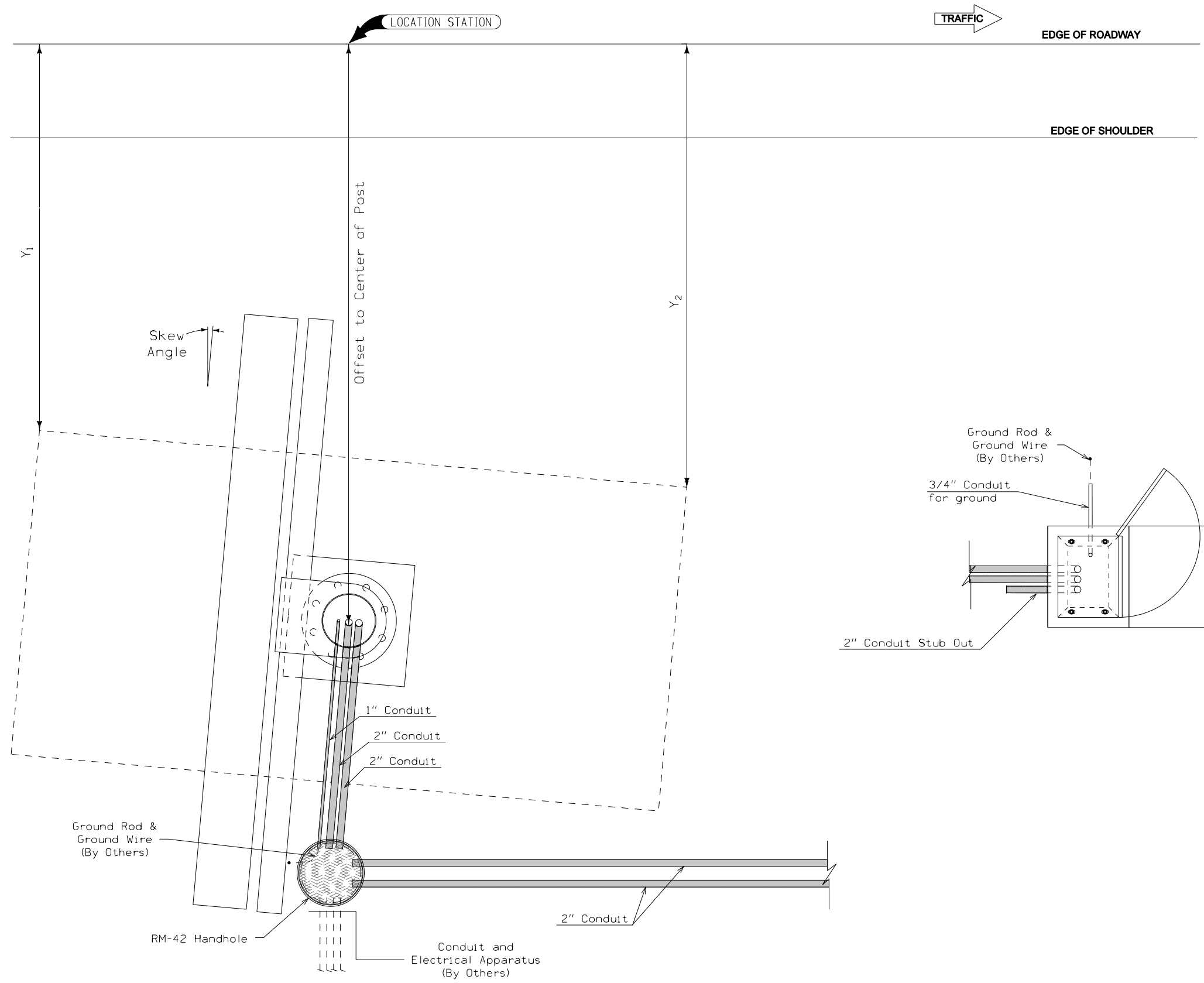
When removing an existing sign, the pick angles or lifting brackets may need to be furnished by the Contractor. Consult Skyline for specific information about the pick angle or lifting bracket requirements.

1. When the sign arrives, it should remain secured at all times, either to the trailer or to the crane, until fully mounted on the sign support structure or until secured to the ground.
2. Remove the strapping blocks from the top of the sign to free the brackets to in order to attach the lifting sling.
3. Secure the crane's lifting slings to the sign using the appropriate sling length. Attach the slings to the pick angles on the top of the sign using the appropriate spreader bars and/or clevises. Calculate the hoisting sling's length by measuring the distance between the pick angles and a minimum 60° inside angle with the sign.

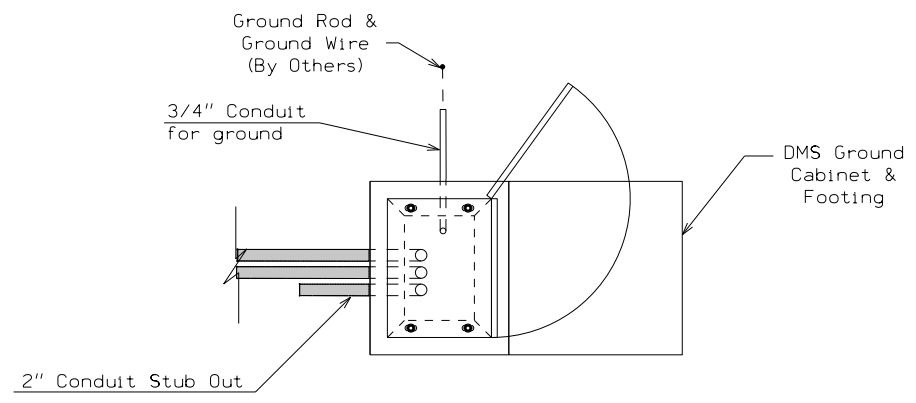


4. Lift the sign into position.
5. If applicable, remove any shipping support legs from the underside of the DMS, and lifting support angles from the top of the DMS. Plug and seal all openings as per the manufacturer's requirements. Any damage incurred by improperly sealed openings shall be the responsibility of the Contractor.

DETAILS OF ROADSIDE
DYNAMIC MESSAGE SIGN



PLAN VIEW



SITE INSTALLATION NOTES:

Contractor is to install the sign footing, sign support structure, DMS, the ground cabinet footing, ground cabinet, RM-38 junction box, and conduit between the handhole and each footing.

All wiring for communications, electrical service, and grounding will be completed by the DOT.

The DOT will furnish the ground cabinet to be installed.

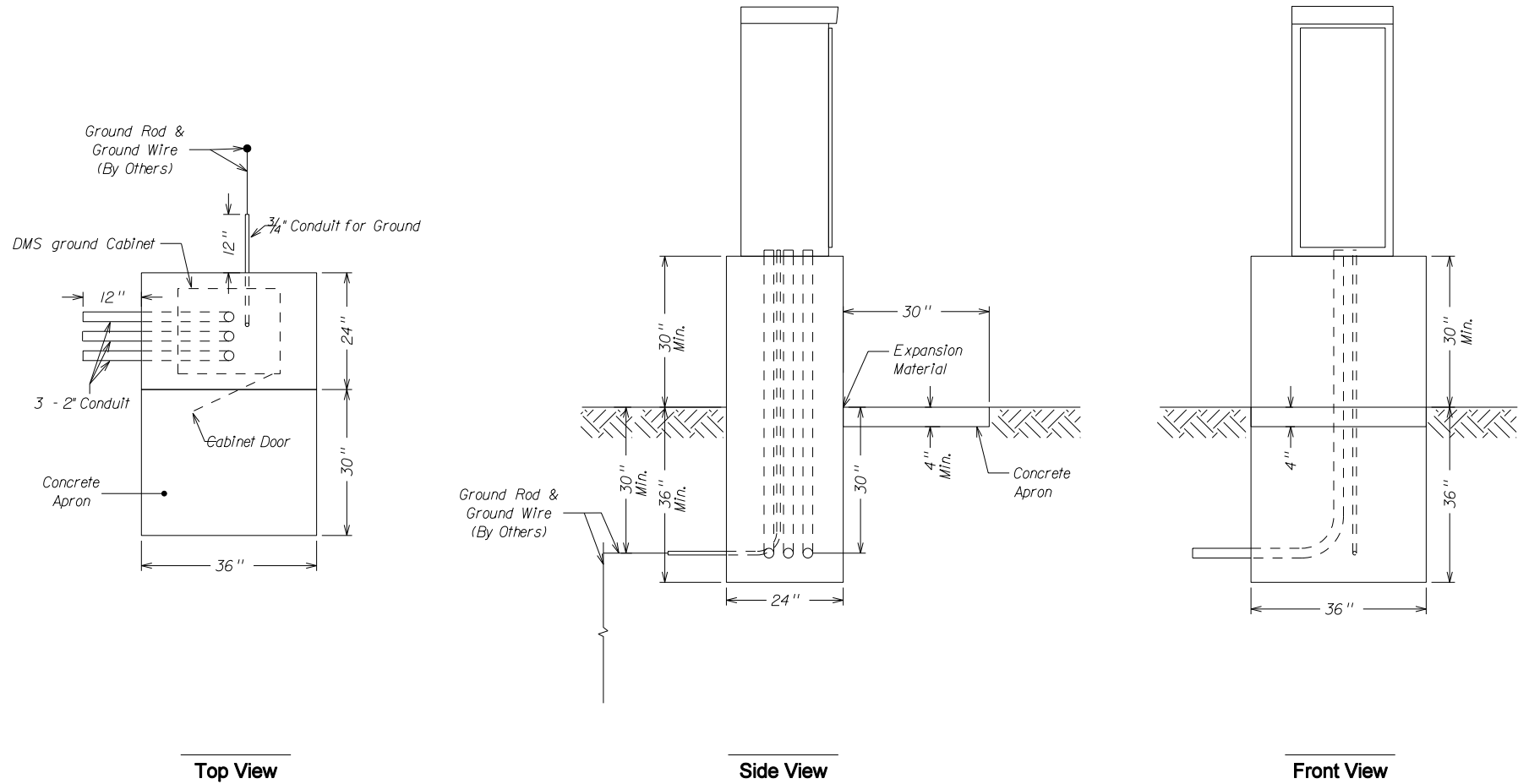
The ground cabinet footing shall be located within 25 feet of the RM-38 junction box, beside or behind the DMS and oriented as indicated relative to traffic. In locations with a ditch, the footing shall not be located within the ditch bottom, but should be located beyond the top of the backslope, if possible. The Engineer shall approve the location and orientation prior to placement of the footing.

Install socket type bell ends on conduit protruding from the footing. Finished conduit (including bell end) is to protrude 5 to 6 inches from the top of footing.

Mark the locations of all conduit entering the sign support structure footing and the ground cabinet footing. Locate marks on the side the conduit enters, near the top, to ensure visibility after backfilling and shaping.

Install handhole and conduit and complete site restoration per section 2523.

SITE INSTALLATION
DETAILS FOR ROADSIDE
DYNAMIC MESSAGE SIGN



Center DMS Cabinet on footing and attach with pull out anchors. Refer to IM 453.09 for approved anchors.

Center conduits in the footing. Prior to pouring the footing, confirm that no conflicts exist between the conduit placement and the ground cabinet. Maintain at least 2" of clearance to the edge of the ground cabinet.

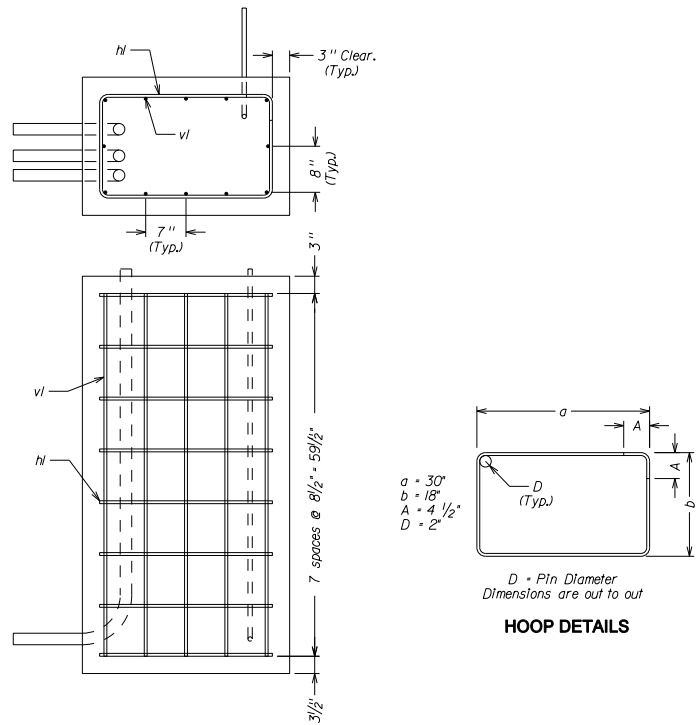
Cap all open ends of conduit before backfilling. For future reference, mark the locations of all conduit entering the footing on the side which the conduit enters. Locate marks near the top to ensure they remain visible after backfilling and shaping.

Install socket type bell ends on conduit protruding from the footing. Finished conduit (including bell end) is to protrude 5 to 6 inches from the top of footing.

Use Class C Structural Concrete for the footing. Meet the requirements of section 2403 for placement of the concrete. The top of the footing is to be level, and the top edges rounded with an edger. Provide forms of sufficient strength to prevent warping, bulging, or other deflections.

Epoxy coated reinforcement to meet the requirements of section 2404.

Conduit, excavation, backfilling, and site restoration to meet the requirements of section 2523.



EPOXY COATED REINFORCEMENT QUANTITIES				
per footing				
BAR	QTY	SIZE	LENGTH	WEIGHT
v1	12	#4	59½	39.8
h1	7	#4	105	46.7
Total Weight				86.5

CONCRETE QUANTITIES	
per footing location	
Footing	1.22 cu yd
Pad	0.09 cu yd

DMS GROUND CABINET
FOOTING DETAILS

Reinforcing Details

ESTIMATED PROJECT QUANTITIES

100-1A

07-15-97

Item No.	Item Code	Item	Unit	Total	As Built Quan.
1	2402-2720000	EXCAVATION, CLASS 20	CY	60	
2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	23.0	
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	2240	
4	2526-8285000	CONSTRUCTION SURVEY	LS	1	
5	2528-8445110	TRAFFIC CONTROL	LS	1	
6	2533-4980005	MOBILIZATION	LS	1	
7	2599-9999005	ROADSIDE DMS, INSTALL	EACH	2	
8	2599-9999005	STEEL ROADSIDE DMS SIGN SUPPORT	EACH	2	

04-15-08232-3A

EROSION CONTROL: (Rural Seeding)

Following completion of work in a disturbed area, the area shall be seeded, fertilized, and mulched as follows:

SEEDING:

3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1000 sq. ft. All mulch shall be consolidated into the soil with a mulch stabilizer.

The preparation of the seedbed and the furnishing and application of seed, fertilizer, and mulch shall be considered incidental to mobilization and no extra compensation will be allowed.

04-03-01203-2

During construction of this project, the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of the time will include construction of the follow-ing projects:

Project

Type of Work

04-15-08213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project.

It shall be the contractor's responsibility to ensure that areas (including haul roads) selected for waste or disposal not impact 1) culturally sensitive sites or graves or 2) wetlands or "Waters of the U.S.", including streams or stream banks below the "ordinary high water mark", without an approved U.S. Army Corps of Engineers Section 404 Permit.

No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

06-22-84213-3

All borrow areas, stockpile areas, haul roads and areas used for equipment on this project will require subsoil tillage to an average depth of 16 inches to 20 inches prior to placement of topsoil and/ or stabilizing crop seeding. Such tillage shall be accomplished on maximum of three foot centers and at right angles to the finished slope of the borrow.

Equipment used to accomplish the tillage shall be equipped with an arrowhead-type shoe so as to provide lateral displacement and limit the movement of the subsoil to the surface. It shall be approved by the engineer for the use intended. This work will be considered in-cidental to other work on the project and no payment will be allowed.

It is intended that following subsoil tillage, the area remains in a "loosened" condition. Additional compaction or the operation of heavy equipment, other than required for topsoil placement and shap-ing shall not be allowed on areas which have received subsoil tillage.

TRAFFIC CONTROL PLAN

108-23

04-04-89

Two lanes of traffic shall be maintained at all times in each direction.

ESTIMATE REFERENCE INFORMATION

100-4A

10-29-02

Item No.	Item Code	Description
1	2402-2720000	EXCAVATION, CLASS 20 Refer to Tabulation 192-1.
2	2403-0100000	STRUTURAL CONCRETE (MISCELLANEOUS) Refer to Tabulation 192-1 and "V" sheets for details.
3	2404-7775005	REINFORCING STEEL, EPOXY COATED Refer to Tabulation 192-1 and "V" sheets for details.
4	2526-8285000	CONSTRUCTION SURVEY
5	2528-8445110	TRAFFIC CONTROL Refer to Tabulation 108-23 and Sheet J.01.
6	2533-4980005	MOBILIZATION
7	2599-9999005	ROADSIDE DMS, INSTALL Refer to Tabulation 192-1 and "V" sheets. Work shall consist of furnishing all labor, equipment, and materials to construct and dynamic message sign (DMS), generally including, but not limited to: <div>- attachment of the DMS to the support structure - construction of the ground cabinet footing - installation of an RM-38 junction box - installation of the conduit between the sign support structure footing and the ground cabinet footing - installation of the ground cabinet - transport DMS and associated appurtenances from storage area - remove existing 3' "Z" brackets on back of signs and replace with DOT provided 5" "Z" brackets</div> The Roadside DMS vendor is Skyline Products, Inc. of Colorado Springs, Colorado. The following items will be provided by the DOT or the DMS vendor: DMS, DMS-to-sign support structure attachment hardware, and ground cabinet. The Contractor shall assume full responsibility for the DOT furnished materials prior to accessing them. This assumption of responsibility shall be documented with an itemized invoice clearly identifying each item and shall be signed and dated by the Contractor and the Engineer. Lacking a signed invoice, the default date of assumption of responsibility for these materials shall be the date the contract between the DOT and the Contractor is signed. Upon the assumption of responsibility for any and all materials, the Contractor shall be wholly liable for safe handling, storage, and installation of the equipment. Any damaged equipment shall be replaced at the Contractor's expense, without additional compensation. The DMS's and related equipment are stored in the Iowa DOT Walkon Maintenance Facility. METHOD OF MEASUREMENT: The Engineer will count the number of Roadside DMS signs installed. BASIS OF PAYMENT: The Contractor shall be paid the contract unit price for each Roadside DMS sign installed. This payment shall be full compensation for furnishing all material, equipment (except as noted above) and labor and for the performance of all work necessary, including transport of all provided materials from their present location, to provide the DMS installation.
8	2599-9999005	STEEL ROADSIDE DMS SIGN SUPPORT For the fabrication and installation of steel sign supports. Refer to the V sheets for dimensions and details. These items shall be constructed as per section 2423.

ESTIMATE OF QUANTITIES, ESTIMATE REFERENCE INFORMATION
TRAFFIC CONTROL PLAN, AND STANDARD NOTATIONS

IOWA DEPARTMENT OF TRANSPORTATION

OFFICE OF TRAFFIC & SAFETY

DESIGN TEAM

NARIGON/JENSEN

ALLAMAKEE COUNTY

PROJECT NUMBER

ITS-76-2(45)--25-03

SHEET NUMBER

C.01

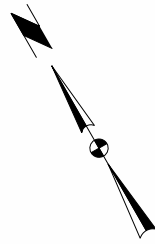
4/5/2010

pjense2

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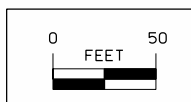
TABULATION OF MATERIALS FOR STEEL ROADSIDE DMS SIGN SUPPORT											192-1	
Refer to Site Installation Details on Sheet B.02, "N" Sheets and "V" Sheets.											03-17-09	
DMS NUMBER	LOCATION				HORIZONTAL OFFSET TO CENTER OF POST (Ft)	SKEW ANGLE (Degrees)	OFFSETS TO NEAR CORNERS OF FOOTING		LENGTH OF POST (F t)	FOUNDATION QUANTITIES		
	ROUTE	STATION	MILEPOST	DIR OF TRAVEL			Y ₁ (F t)	Y ₂ (F t)		EXCAVATION (CLASS 20) (Cu Yd)	REINFORCING - EPOXY- COATED STEEL (Lb)	STRUCTURAL CONCRETE (Cu Yd)
631	IA 76	297+80	21.44	EB	40.0		33.3	39.0	16.0	30	1120	11.5
632	IA 76	823+15	11.50	EB	38.0		34.0	34.0	30.0	30	1120	11.5
TOTALS										60	2240	23.0

SIGNING TABULATIONS

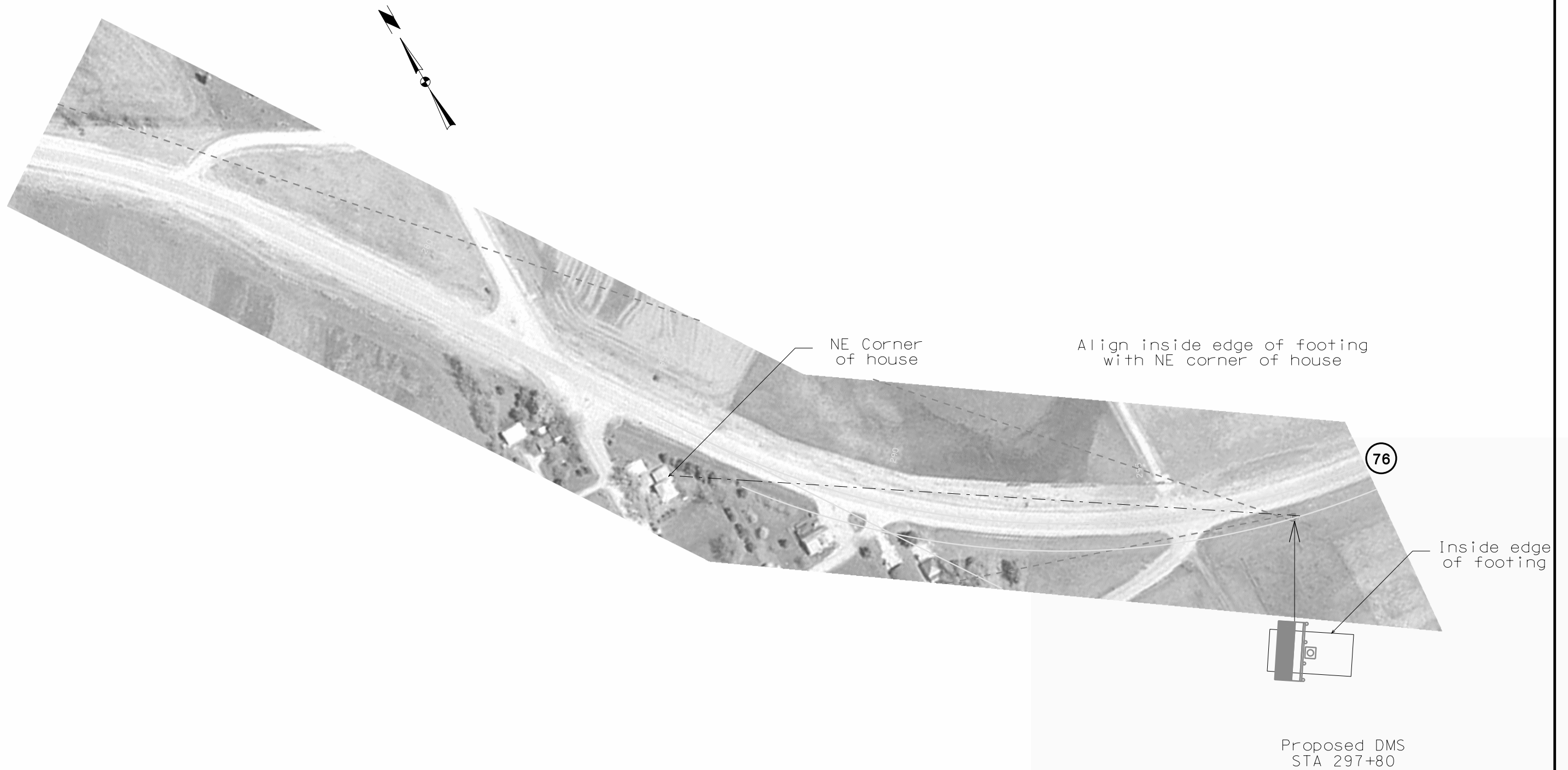


Proposed DMS
STA 297+80

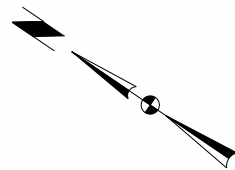
DMS



**SITE DETAILS FOR DMS #631
IA 76 - EASTBOUND
SOUTH OF ROSSVILLE**

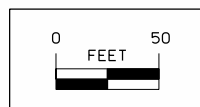


**SITE DETAILS FOR DMS #631
IA 76 - EASTBOUND
SOUTH OF ROSSVILLE**



DMS

Proposed DMS
STA 823+15



**SITE DETAILS FOR DMS #632
IA 76 - EASTBOUND
AT COUNTY ROAD X-52**

ANCHOR BOLT NOTES:

PROCEDURE FOR TIGHTENING ANCHOR BOLT NUTS ON STEEL ROADSIDE D.M.S. SUPPORT.

- 1) THIS WORK SHALL BE PERFORMED ONLY ON DAYS WITH WINDS LESS THAN 15 MPH. ALL TIGHTENING OF THE NUTS IS TO BE DONE IN THE PRESENCE OF THE INSPECTOR. ONCE THE TIGHTENING PROCEDURE IS STARTED IT MUST BE COMPLETED ON ALL OF THE BASE PLATE NUTS WITHOUT PAUSE OR DELAY.
- 2) PROPERLY SIZED WRENCHES DESIGNED FOR TIGHTENING NUTS AND/OR BOLTS SHALL BE USED TO AVOID ROUNDING OR OTHER DAMAGE TO THE NUTS. ADJUSTABLE END OR PIPE WRENCHES MAY NOT BE USED.
- 3) BASE PLATE, ANCHOR RODS AND NUTS ARE TO BE FREE OF ANY DIRT OR DEBRIS.
- 4) APPLY STICK WAX OR BEES WAX TO THE THREADS AND BEARING SURFACES OF THE ANCHOR BOLT, NUTS, AND WASHERS.
- 5) TIGHTEN TOP NUTS SO THEY FULLY CONTACT THE BASE PLATE. TIGHTEN LEVELING NUTS TO SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE FULL EFFORT OF ONE PERSON ON A WRENCH WITH A LENGTH EQUAL TO 14 TIMES THE BOLT DIAMETER BUT NOT LESS THAN 18 INCHES. APPLY THE FULL EFFORT AS CLOSE TO THE END OF THE WRENCH AS POSSIBLE. PULL FIRMLY BY LEANING BACK AND USING ENTIRE BODY WEIGHT ON THE END OF THE WRENCH UNTIL THE NUT STOPS ROTATING. USE A MINIMUM OF TWO SEPARATE PASSES OF TIGHTENING. SEQUENCE THE TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL OF THE NUTS IN THAT PASS HAVE BEEN TIGHTENED.
- 6) TIGHTEN TOP NUTS TO SNUG TIGHT AS DESCRIBED FOR THE LEVELING NUTS.
- 7) MATCH-MARK THE TOP NUTS AND BASE PLATE USING PAINT, CRAYON, OR OTHER APPROVED MEANS TO PROVIDE A REFERENCE FOR DETERMINING THE RELATIVE ROTATION OF THE NUT AND BASE PLATE DURING TIGHTENING. USING A STRIKING OR HYDRAULIC WRENCH, FURTHER TIGHTEN THE TOP NUTS IN TWO PASSES AS LISTED IN THE FOLLOWING TABLE. USE A SEQUENCE OF TIGHTENING IN EACH PASS SO THAT THE NUT ON THE OPPOSITE SIDE, TO THE EXTENT POSSIBLE, WILL BE SUBSEQUENTLY TIGHTENED UNTIL ALL NUTS IN THAT PASS HAVE BEEN TURNED. DO NOT ROTATE THE LEVELING NUT DURING THE TOP NUT TIGHTENING.

ANCHOR BOLT SIZE	FIRST PASS	SECOND PASS	TOTAL ROTATION
LESS THAN OR			
EQUAL TO 1½"φ	1/6 TURN	1/6 TURN	1/3 TURN

- 8) LUBRICATE, PLACE AND TIGHTEN THE JAM NUTS TO SNUG TIGHT.

STAINLESS STEEL BOLTING NOTE:

UNLESS OTHERWISE NOTED ON THE PLAN, ALL STAINLESS STEEL BOLTS AND U-BOLTS SHALL BE FURNISHED WITH STAINLESS STEEL REGULAR HEXAGONAL NUTS, JAM NUTS AND WASHERS UNDER BOTH HEADS AND NUTS.

STEEL NOTES:

ALL STEEL SHAPES, BARS, AND PLATES SHALL COMPLY WITH ASTM A36 EXCEPT MINOR PARTS APPROVED BY THE ENGINEER MAY COMPLY WITH ASTM A575 GRADE M1020. THE GALVANIZED METAL BAR GRATING INCLUDING BEARING BAR, CROSS BARS AND BANDING BARS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A1011 TYPE 2. ALL STEEL PIPE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A53 GRADE B, TYPE E OR S OR API 5L GRADE B. ALL ROUND HSS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A 500 GRADE B.

ALL STEEL SECTIONS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123. PROVIDE VENT HOLES FOR GALVANIZING.

ALL ANCHOR BOLT MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF IOWA DOT MATERIALS IM 453.08.

STEEL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS SPECIFICATIONS D1.1, STRUCTURAL WELDING CODE-STEEL.

ULTRASONIC TESTING SHALL BE PREFORMED ON THE POST TO BASE PLATE WELDS.

THE ¾"φ A325 GALVANIZED BOLTS SHALL BE TENSIONED BY TURN OF THE NUT METHOD.

GENERAL NOTES:

ALL D.M.S. SUPPORTS ARE DESIGNED FOR 40.2 lb/ft² WIND PRESSURE ON MEMBERS AND SIGN PANELS.

ALL PIPES, SHAPES, AND PLATES SHALL BE STRUCTURAL STEEL COMPLYING WITH THE ASTM SPECIFICATIONS NOTED.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW.

CLEAR DISTANCE FROM FACE OF CONCRETE TO THE NEAREST REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE SHOWN.

THE ANCHOR BOLT ASSEMBLY SHALL BE CENTERED AT THE CENTER OF SHAFT AND SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED.

THE FOOTING SHALL BE BACKFILLED PRIOR TO ERECTING SIGN SUPPORT.

DESIGN ALLOWABLE SOIL BEARING IS 1.0 TON PER SQ. FT.

ALL REINFORCING TO BE GRADE 60.

ALL CONCRETE TO BE CLASS "C" STRUCTURAL CONCRETE.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

FOUNDATIONS AND ANCHOR BOLTS:

- 1) THE ELEVATION AT THE OF THE TOP OF THE FOUNDATION SHALL BE WITHIN 1 INCH OF PLAN ELEVATION.
- 2) ANCHOR BOLT GROUPS SHALL BE LOCATED ACCURATELY BY TEMPLATE OR OTHER POSITIVE MEANS, WITH CENTERS OF ADJACENT ANCHOR BOLT GROUPS WITHIN ¾ INCH OF THE CORRECT DISTANCE APART.
- 3) ANCHOR BOLTS SHALL BE PLUMB WITHIN ¼ INCH PER FOOT FROM VERTICAL.
- 4) ANCHOR BOLTS SHALL PROJECT ABOVE TOP OF FOUNDATION WITHIN ¼ INCH OF THE PLAN DIMENSION.
- 5) WELDING OR BENDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER / FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

COMPLETED STEEL STRUCTURE:

- 1) THE SUPPORT COLUMN SHALL BE PLUMB WITHIN ¼ INCH PER FOOT OF VERTICAL IN TWO PERPENDICULAR DIRECTIONS.
- 2) HORIZONTAL LINE BETWEEN CHORDS SHALL BE LEVEL WITHIN ¼ INCH PER FOOT OF HORIZONTAL.

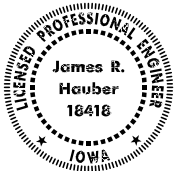
DESIGN STRESSES:

DESIGN STRESSES FOR MATERIALS ARE IN ACCORDANCE WITH A.A.S.H.T.O STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 WITH CURRENT INTERIMS.

SPECIFICATIONS:

DESIGN: A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SERIES OF 2001 WITH CURRENT INTERIMS.
CONSTRUCTION: IOWA D.O.T. STANDARD SPECIFICATIONS, SERIES 2001 PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

STRUCTURAL DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: James R. Hauber Date: 2-23-2010
Printed or Typed Name: James R. Hauber

My license renewal date is December 31, 2010

Pages or sheets covered by this seal: V.I THRU V.5

DESIGN #	COUNTY	LOCATION	STATION
110	ALLAMAKEE	1A 76	297+80
210	ALLAMAKEE	1A 76	823+15

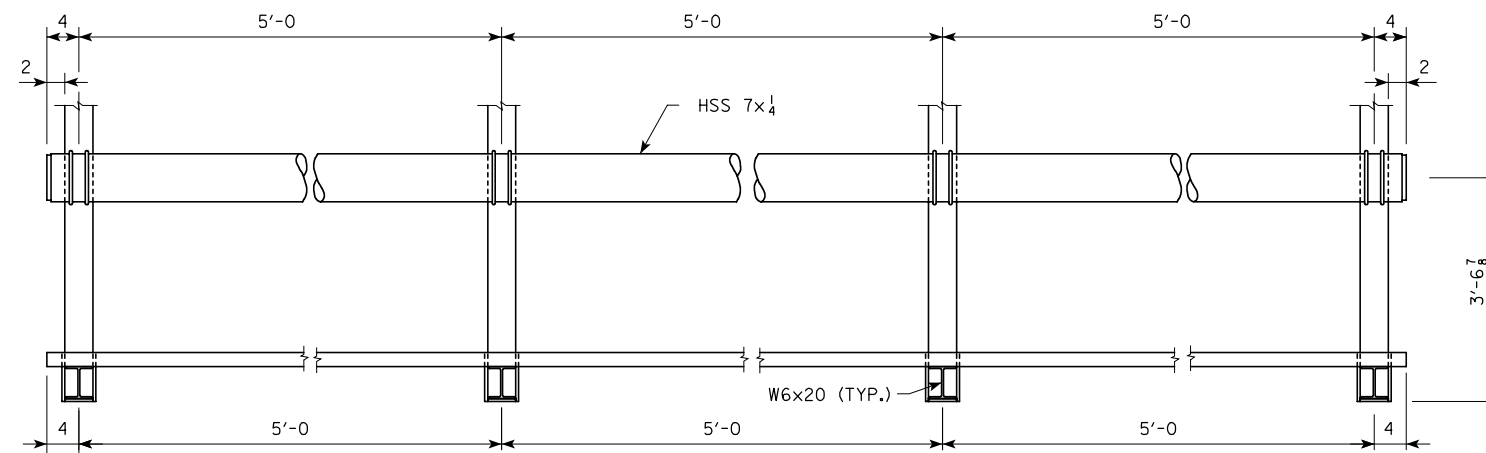
DESIGN FOR
STEEL ROADSIDE D.M.S.
SUPPORT

GENERAL NOTES

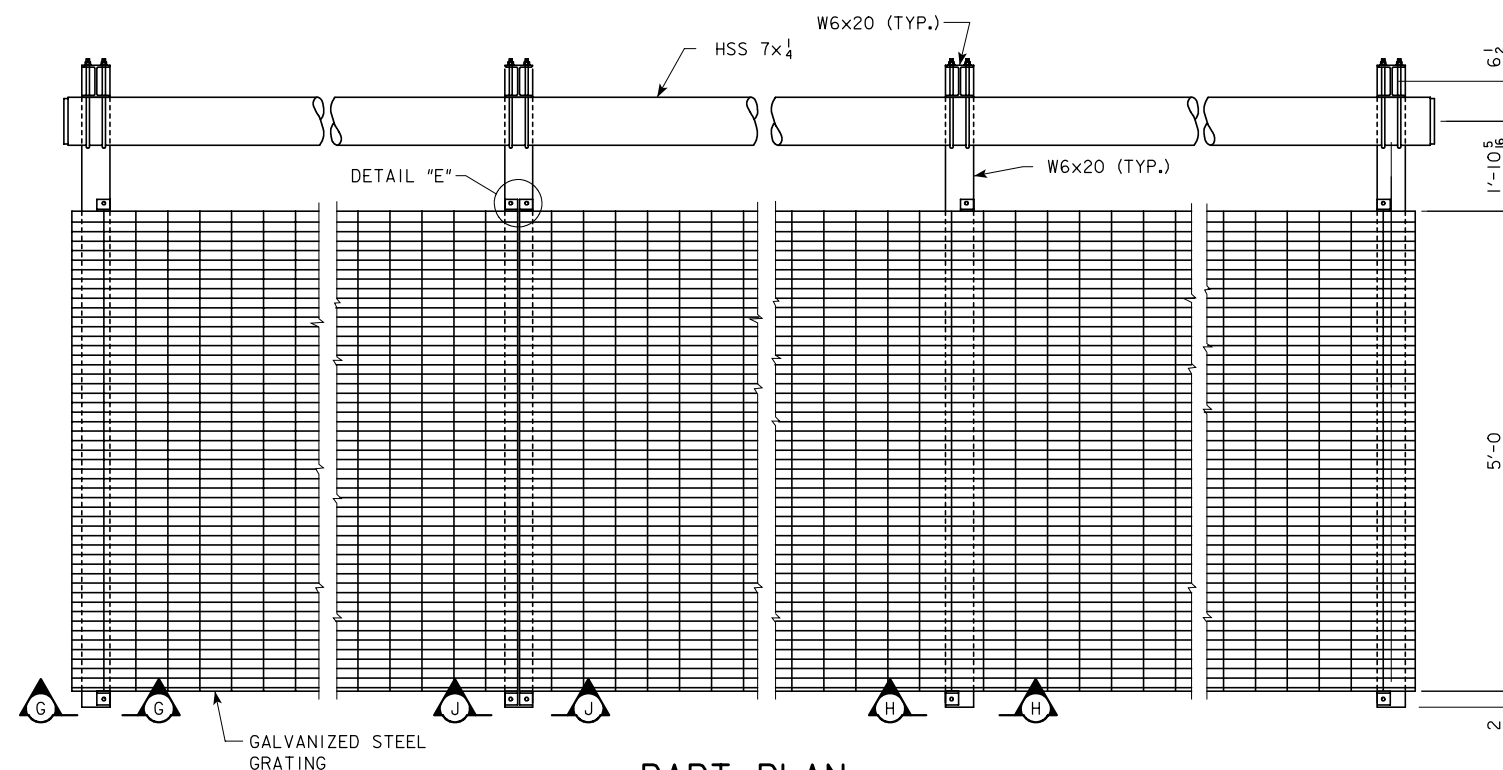
FEBRUARY, 2010

ALLAMAKEE COUNTY

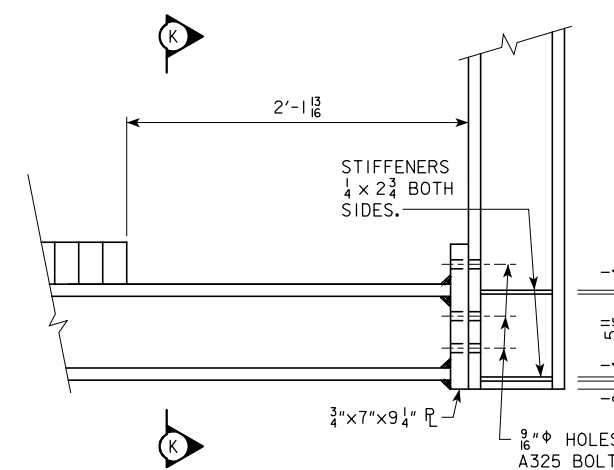
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 5 FILE NO. 30500 DESIGN NO. SEE CHART



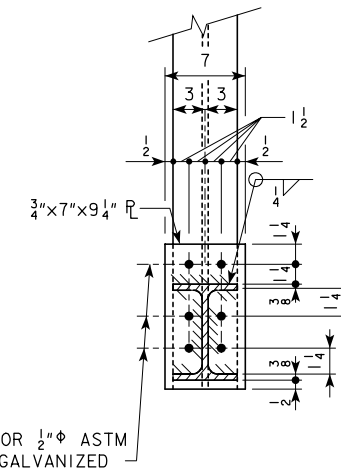
PART ELEVATION



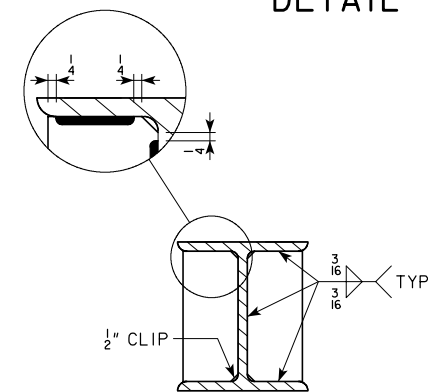
PART PLAN



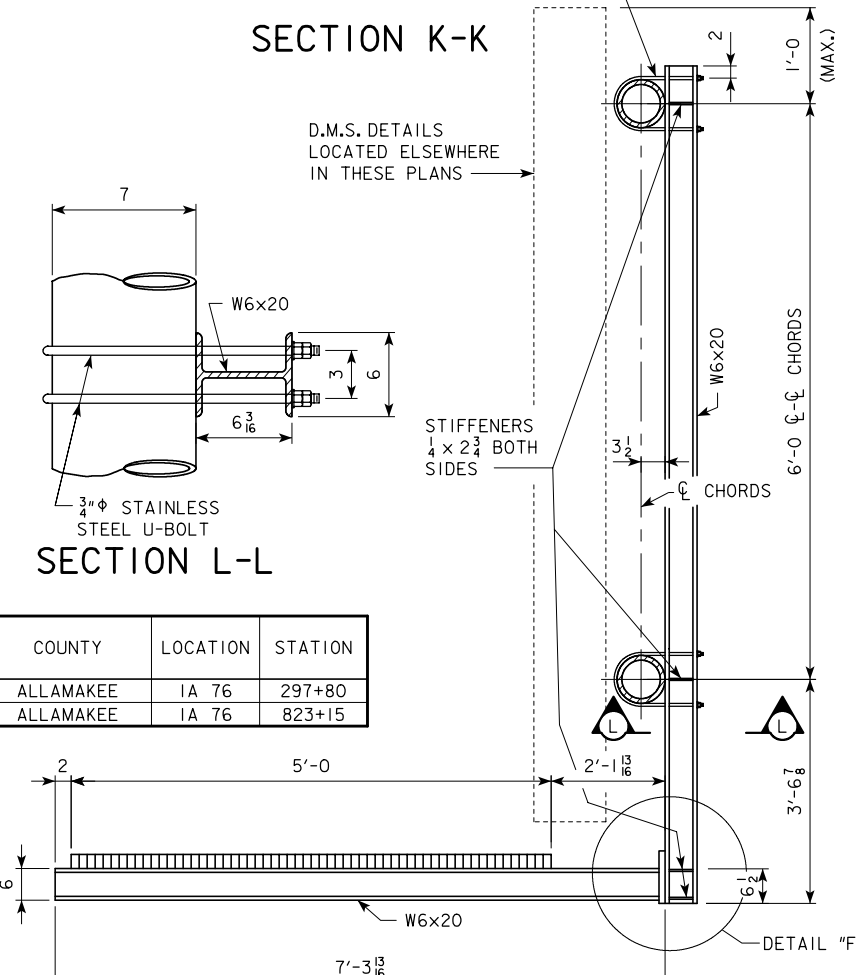
DETAIL "F"



SECTION K-K

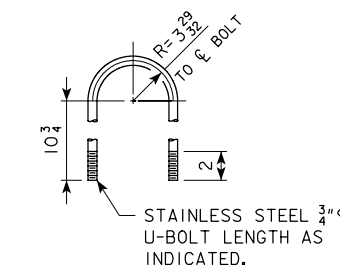


TYPICAL STIFFENER DETAIL



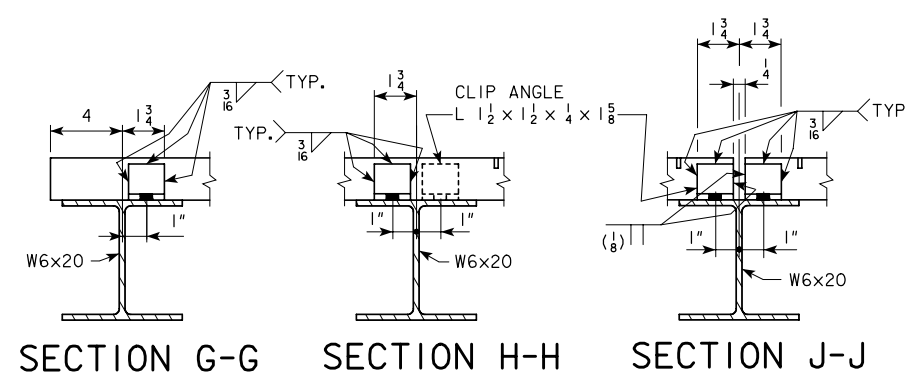
SECTION L-L

DESIGN #	COUNTY	LOCATION	STATION
110	ALLAMAKEE	1A 76	297+80
210	ALLAMAKEE	1A 76	823+15



STAINLESS STEEL U-BOLT DETAIL

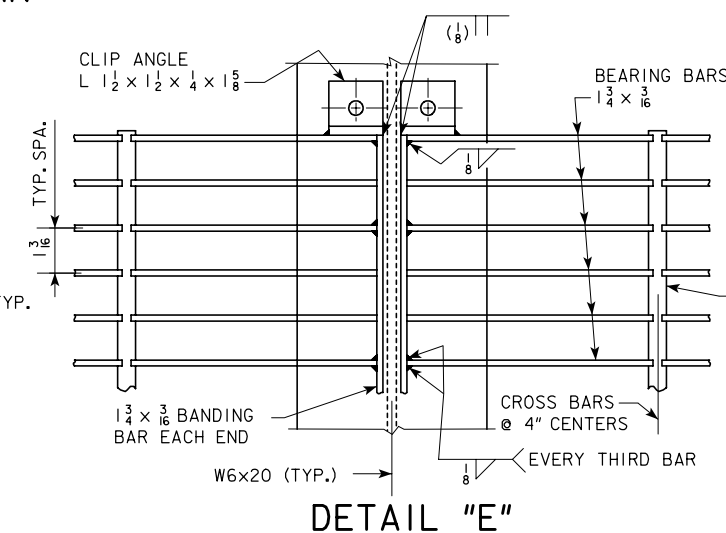
TYPICAL WORK PLATFORM SECTION



SECTION G-G

SECTION H-H

SECTION J-J



DETAIL "E"

NOTE:
1/2 x 3/16 CROSS BARS OR APPROVED EQUAL. CROSS BARS ARE TO BE PRESSURE LOCKED OR WELDED TO BEARING BARS.

NOTE:
7/16" HOLE IN CLIP ANGLE AND 7/16" HOLE IN W6x20 FOR 3/8" GALVANIZED ASTM A325 BOLT. ADJUST CLIP SO GRATING BEARS ON BEAM.

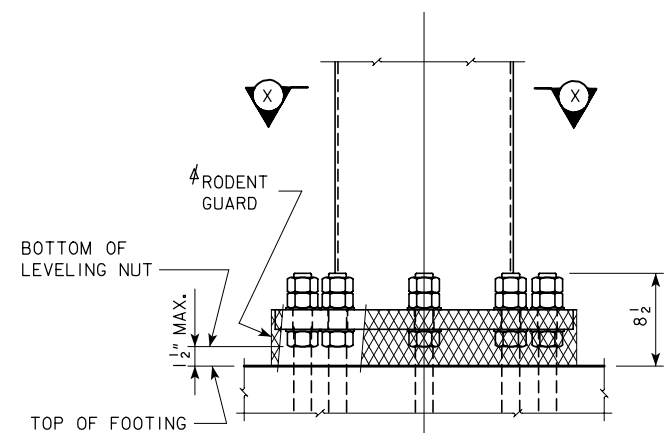
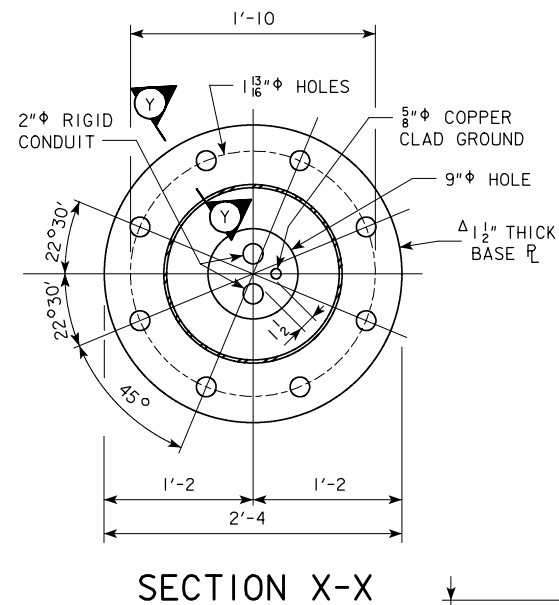
DESIGN FOR
STEEL ROADSIDE D.M.S.
SUPPORT

WORK PLATFORM DETAILS

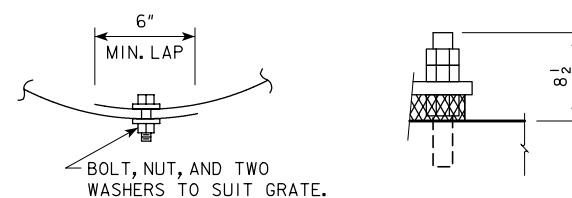
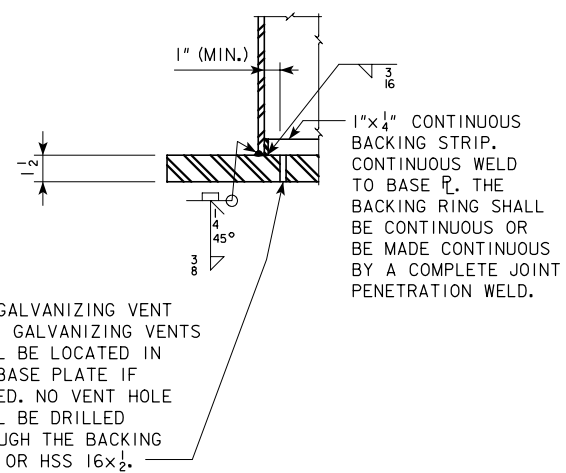
ALLAMAKEE COUNTY

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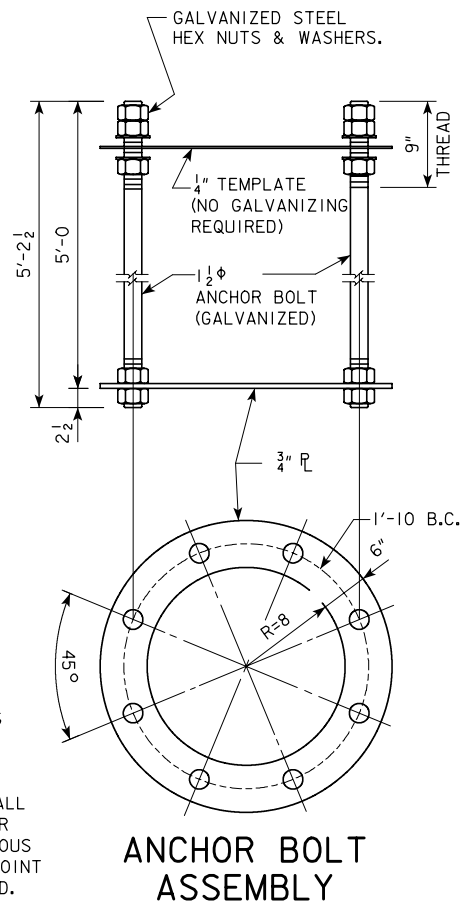


RODENT GUARD ALTERNATE



4 A RODENT GUARD SHALL BE PLACED BETWEEN THE CONCRETE FOOTING AND THE BASE PLATE, SEE MATERIALS I.M. 443.01.

AS AN ALTERNATE STAINLESS
STEEL STANDARD GRADE WIRE CLOTH,
1/4" MAXIMUM OPENING WITH A MINIMUM
WIRE DIAMETER OF AWG NO.16
WITH A MINIMUM 2" LAP.
SECURE TO BASE PLATE AFTER
ERECTION WITH 3/4" STAINLESS
STEEL BANDING. THE RODENT GUARD
SHALL NOT EXTEND ABOVE THE TOP
OF THE BASE PLATE.



(ALL ANCHOR BOLT MATERIAL SHALL COMPLY
WITH THE REQUIREMENTS OF IOWA DOT
MATERIALS I.M. 453.08.)

DESIGN #	COUNTY	LOCATION	STATION
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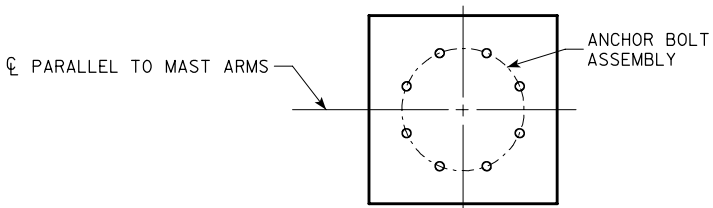
DESIGN FOR STEEL ROADSIDE D.M.S. SUPPORT

SIGN SUPPORT DETAILS

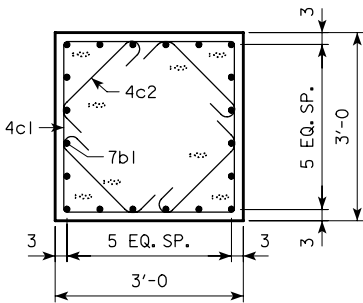
ALLAMAKEE COUNTY

FEBRUARY, 2010

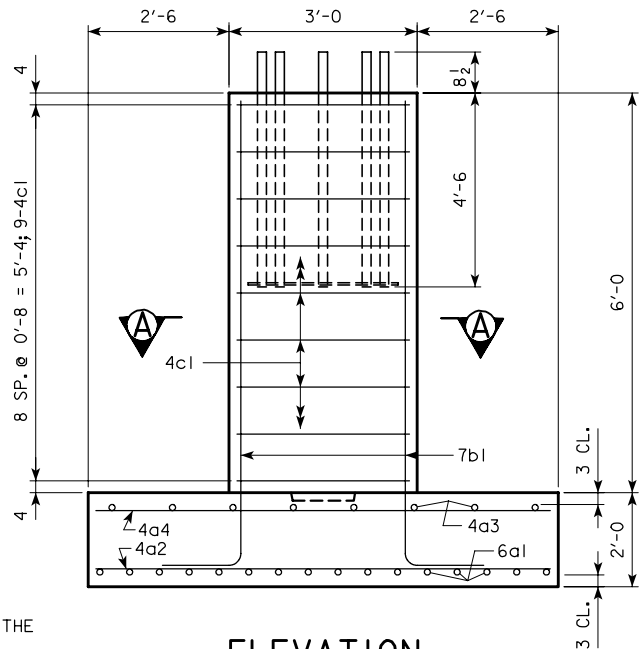
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 4 OF 5 FILE NO. 30500 DESIGN NO. SEE CHART



TOP VIEW

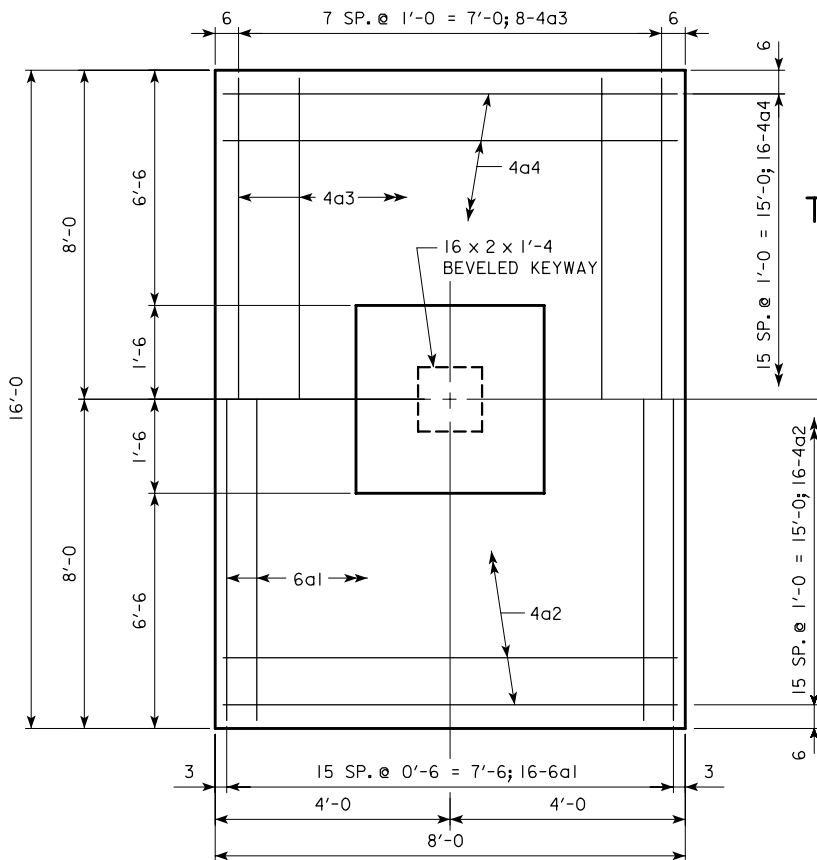


SECTION A-A



ELEVATION

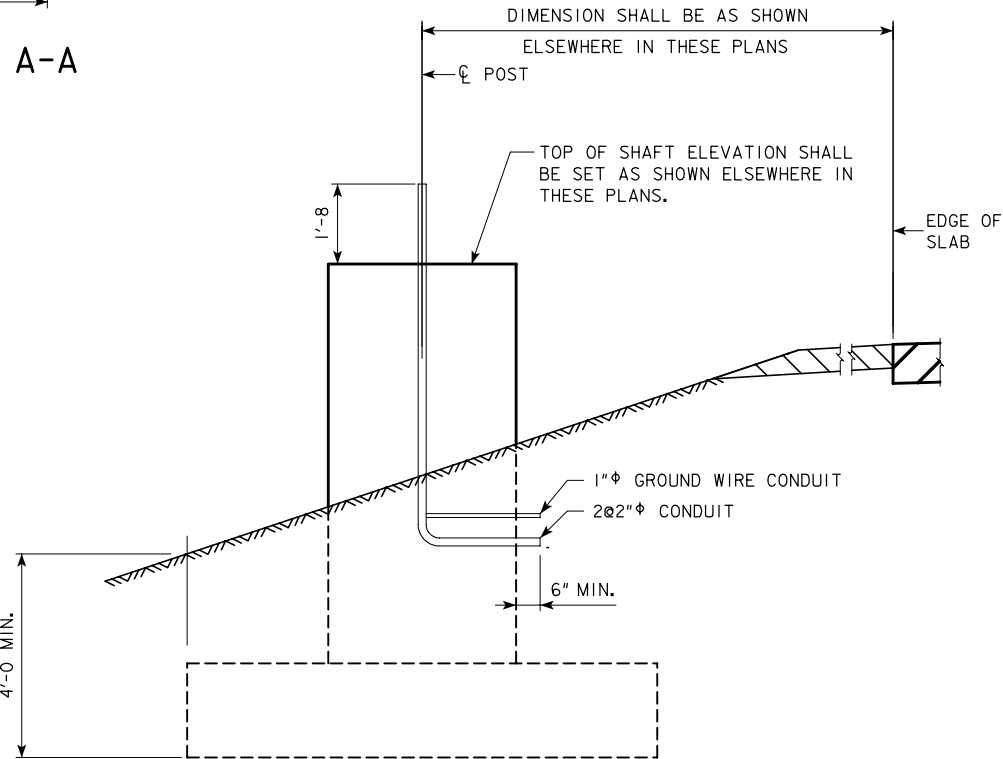
THE JOINT BETWEEN THE
SHAFT AND FOOTING
SHALL BE ROUGH.



FOOTING PLAN

TOP REINFORCING
STEEL

BOTTOM REINFORCING
STEEL

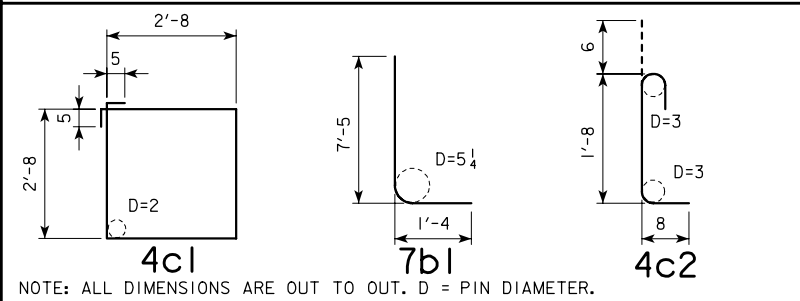


ELEVATION - TOP OF SHAFT
AND BACKFILL

EPOXY-COATED REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	FOOTING BOTT., LONGIT.	—	16	15'-8	377
4a2	FOOTING BOTT., TRANSV.	—	16	7'-8	82
4a3	FOOTING TOP, LONGIT.	—	8	15'-8	84
4a4	FOOTING TOP, TRANSV.	—	16	7'-8	82
7b1	FOOTING TO SHAFT DOWEL	L	20	8'-9	358
4c1	SHAFT HOOPS	□	9	11'-6	69
4c2	SHAFT TIES	⌒	36	2'-10	68
REINFORCING STEEL - EPOXY COATED TOTAL (LBS.)					1120

BENT BAR DETAILS



ESTIMATED CONCRETE
QUANTITIES

SHAFT	2.0
FOOTING	9.5
TOTAL - CU. YDS.	11.5

FOOTING ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE	CU. YDS.	11.5
REINFORCING STEEL-EPOXY COATED	LBS.	1120

DESIGN #	COUNTY	LOCATION	STATION
110	ALLAMAKEE	IA 76	297+80
210	ALLAMAKEE	IA 76	823+15

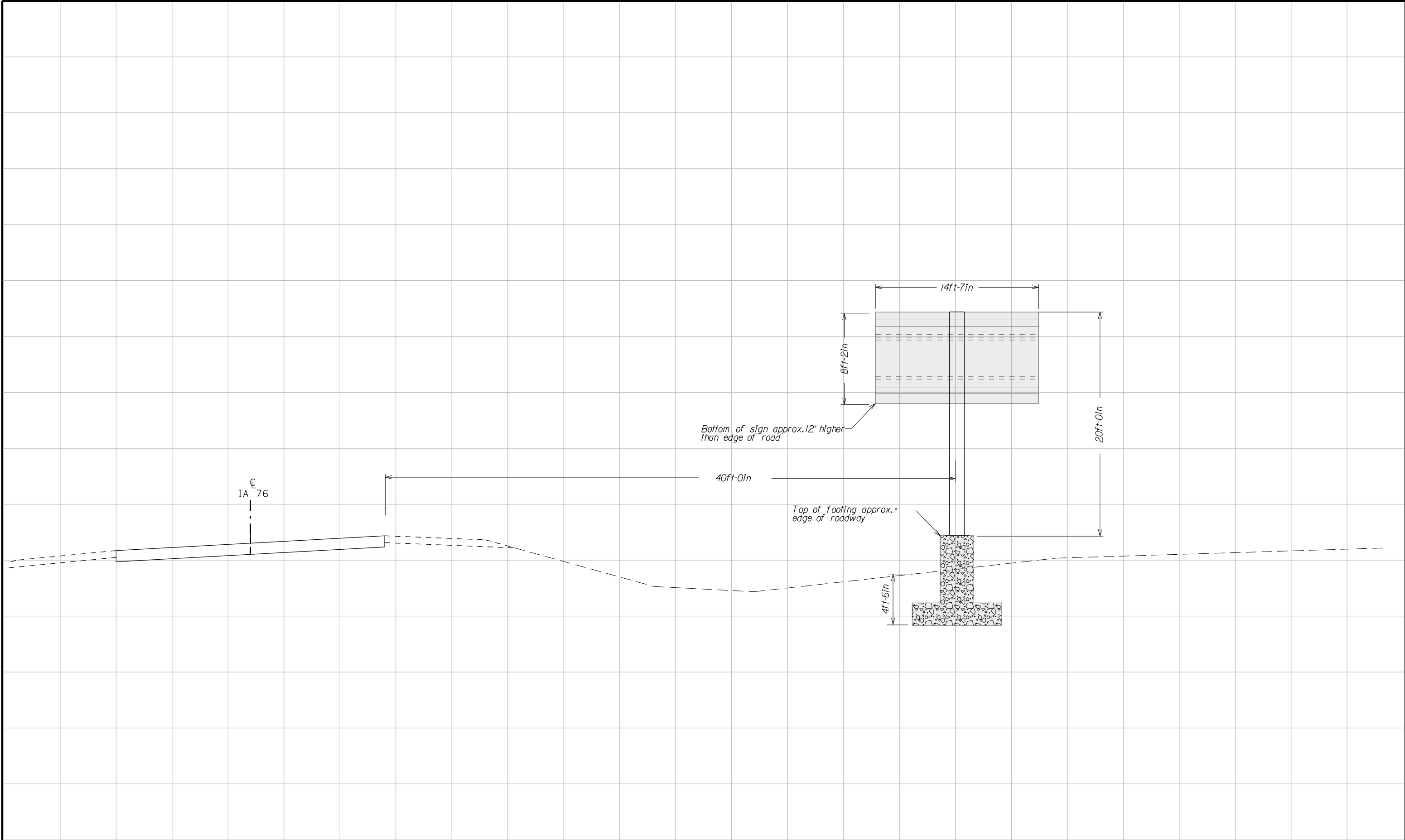
DESIGN FOR
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SUPPORT

FOOTING DETAILS

ALLAMAKEE COUNTY

FEBRUARY, 2010

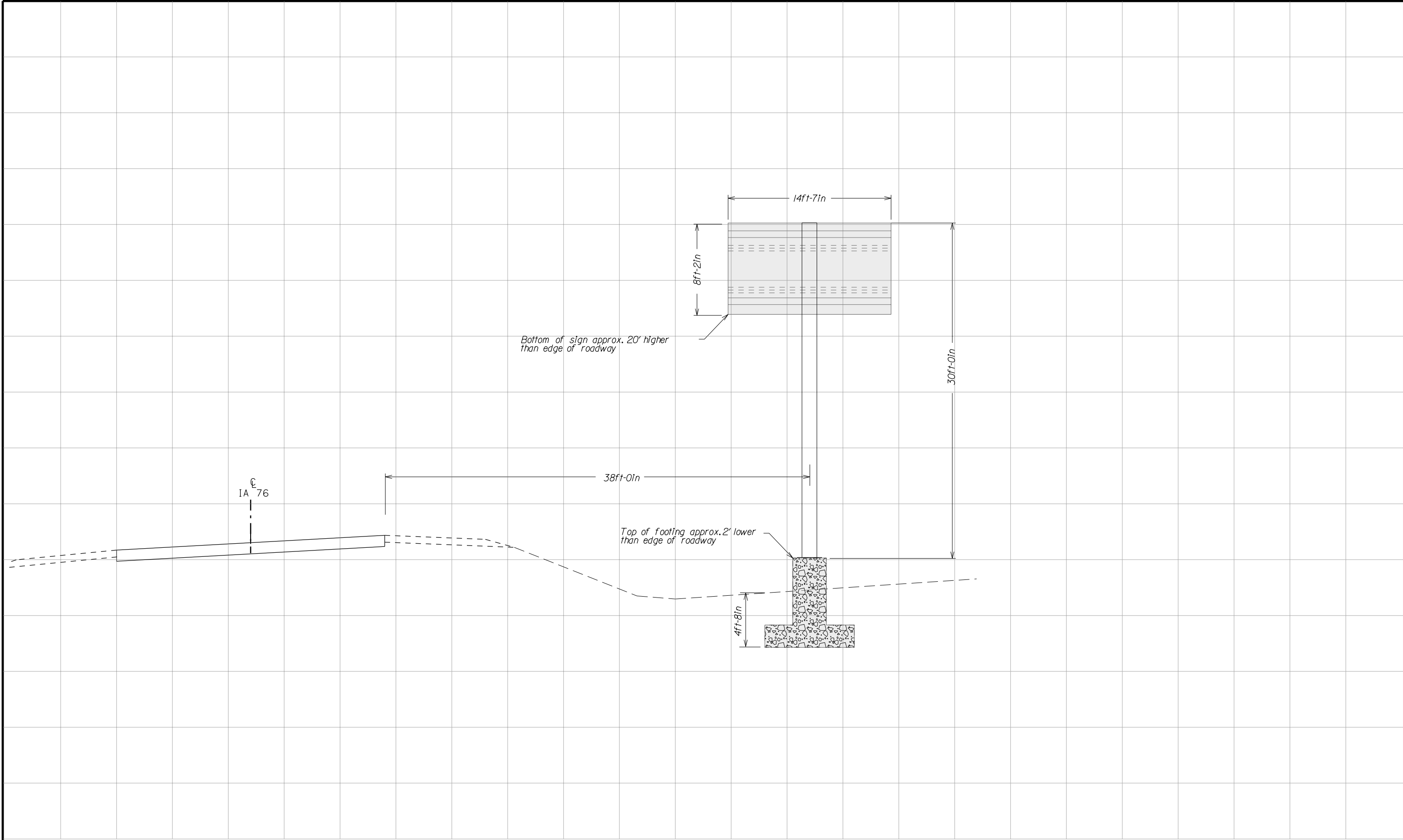
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STA 297+80
PROPOSED DMS

IA 76

DMS# 631



20

STA 823+15
PROPOSED DMS

IA 76

DMS# 632